

THE POULTRY MESSENGER

& WESTERN FRUIT-GROWER.

Vol. 1.

AURELIA, IOWA, APRIL, 1895.

No. 2.



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The pamphlets are delivered to pur-
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Eggs \$2 per sitting of thirteen.
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From the Choicest Breeding Stock.

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I have some very fine, vigorous fowls of these two grand breeds, mated for
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Buff Wyandottes.

1 Sitting, \$2.00; 3 Sittings, \$4.00.

One Sitting of each breed \$3.00. Orders filled in rotation as received, and
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W. C. Black Polish,

1 Sitting, \$1.50; 3 Sittings, \$3.50.

P. D. WINE, Aurelia, Iowa.

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The latest and finest raspberry out. Picked in fruit the past season over
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At low prices. An early order will secure Perfection raspberries—they are
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A. J. NORRIS, Cedar Falls, Iowa.

Barred Plymouth Rocks,

AND

POLAND-CHINA SWINE.

For fine appearance, vigor and all the best qualities of the Plymouth Rocks,
I believe my flock is the equal of any. I keep Plymouth Rocks exclusively, and
have been a breeder of them for ten years. Eggs \$1.25 per sitting; two sittings
for \$1.75.

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Twenty choice gilts for sale sired by Hatfield's Choice 19771 he by Black
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I want every person interested in this popular and beautiful breed to send
for our large 4-paged '95 circular, free, stamp accepted. I have one of the finest
flocks and prize winners, scoring 94½ by Felch to 93½ by Drevenstedt. Also,

Black Javas, and Columbian Wyandottes.

Get my circular sure

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GEO. S. BARNES,

Battle Creek Michigan.

FOR SALE!

30 Plymouth Rocks

Which I will sell cheap for the next
30 days with score card. I also breed

DUROC JERSEY HOGS.

I have a few fall pigs which will be ready to ship next may,

DAVID NAUMAN, West Liberty, Iowa.

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THE SETTING HEN.

While admitting that the setting hen is about as obstinate a creature as can be named, it will be found that she is more managable than many people suppose if she is handled in the right way. She can be coaxed and petted into doing most anything you want of her, but she is a veritable anarchist if the attempt is made to force her into submitting to something to which she strongly objects. She is a creature of positive opinions about things, and is not at all backward about asserting them; but the right sort of argument and persuasion will usually have the effect of convincing her that others may have some ideas concerning what is good for her to which she is bound to pay some respect.

It is believed by some people that when a hen takes a notion to set she must not be removed from the place which she has selected for that purpose. The writer never allows a hen to hatch out her brood on the spot of her own choosing. She is certain to make choice of one of the nesting boxes of the poultry house. On many accounts we regard that as the worst place on the premises for a setting hen. Our hens are all removed from the poultry house to the hatching room, and we have learned to expect them to submit to the change as a matter of course. Once in a great while we meet with a hen that rebels. We don't waste any time bothering with that hen. We simply see to it that if she will not set where we want her to she does not set at all, and when the next coop of chickens goes to market she is certain to be one of the crowd. The best way to get rid of any undesirable trait in a hen is to banish her from the premises. To retain her in the breeding pen is to perpetuate those traits and make yourself future trouble.

The hen should always be moved at night. The nest should be all prepared, but in order to be on the safe side, it is best to put into it only one or two eggs. Carry the hen to the nest, and

hold her before it in a way that will enable her to see the eggs by the light of a lantern. Gently urge her forward, when at the end of a minute she will step into the nest, and if she settles herself down in the contented way familiar to those who have had much to do with poultry, it may be regarded as pretty certain that she will attend faithfully to the task to which it is desired she will give her attention. Close the entrance and allow her to remain on the nest until the next afternoon. Then lift her off and feed her. If after taking her feed she returns to the nest of her own accord, it may be regarded safe to give her the full number of eggs. If there is no hurry or bustle in connection with the proceeding, setting hens may in this manner be moved from place to place at will, and it will be an unusual thing to get hold of one which will make a stubborn resistance to the change.

SOMETHING RELIABLE.

Many people after deciding to purchase an incubator find it no easy matter to make a selection out of the list of the various machines on the market. It is a well known fact that some of the machines which are offered to the public are worthless, and one with no experience in the handling of incubators is very liable to spend his money for something which will be of no service to him. To such persons we want to say that they will have nothing to regret if they will buy their machines of the Reliable Incubator and Brooder Company, of Quincy, Illinois. This company's machines rank among the best which are made, and no purchaser will have any reason to be disappointed in them. Those who have had the handling of incubators and brooders know what to buy, and generally what not to buy, but we are sure that we are doing a service for that class who have no such advantages for deciding between the different machines, in assuring them that they will get something which is in truth reliable if they buy of the firm above named.

A POOR WAY.

When a breeder of poultry puts an advertisement in the papers offering eggs for sale, he should make up his mind to promptly answer all inquiries which come to him as a result of the advertising. It is sometimes the case that the breeder receives more orders than he can fill, and becomes careless about replying to such letters when he no longer has anything to sell. Meanwhile the writers of some of these letters are being subjected to delays which may be costly to them. Frequent complaints are heard in regard to this careless habit on the part of advertisers. This is a shabby way for a person to treat those who have come to him in response to his invitation to do business with him. It is safe to say that the advertiser will have no chance to sell anything to those people in the future.

THEY ARE SCARCE.

No other business gives you a better chance to show your ingenuity than that of a breeder of fine poultry. Nature helps you while you mix colors in the spring to understand their effect in the fall. You need only one or two lessons to convince you that "Like begets like." Nice birds are not the progeny of culls. Let no one think that the mating and breeding of poultry is child's play, or not worthy of their skill, for a trial will convince that it is harder to gain a point than to lose one, and men that can bring out a lot of ninety-five pointers are too scarce for every town.—D. J. Lambert.

Study how to feed your chickens at the smallest expense, and at the same time keep them fully supplied with everything necessary to maintain a healthy condition. A flock of chickens may be made to lay an abundance of eggs, but at such a cost that there is no profit in keeping them.

The food that that thieving dog consumes would support ten hens. And the hens would supply an ordinary family with all the eggs that it needs.

NOT PREPARED FOR THE COLD SNAP.

A poultry house for this northern climate cannot be made too warm. Many of our poultry raisers have lately received a forcible reminder of that fact. Frosted combs and feet are a common sight about the places where poultry has been kept during the past winter, giving evidence of the fact that there are a great many poultry houses which are not what they should be. You see these crippled and disfigured fowls not alone about the premises of those whose poultry houses are conspicuous for the lack of everything which would make them suitable for that purpose, but the flocks of many people who aim to give their chickens proper protection from the cold are similarly marked.

The "cold snap" which came upon us late in the winter is what did the damage. The weather had been so mild previous to this that the fowls could have roosted in a house with the windows open and not suffered with the cold. It really appeared a waste of time for the owner to be expending labor upon the houses with a view to making them warmer, if he had anything else to do. But at the usual time in the fall poultry-keepers had gone to work fixing up things for the winter, including those who are now compelled to look with sorrow upon the mutilated combs of their choicest birds. But from one cause and another this job of getting ready for winter was not completed. The largest openings were closed up, the windows were mended and got in place, and perhaps the banking on the outside was attended to; but an ill-fitting door, and some crevices in the walls close to where they connect with the roof, or in the roof itself, were neglected. These were small matters which could be attended to at any time, and, besides, there was no hurry about it. It looked as though we were not going to have any very cold weather, and if it did come, these little things could then be seen to.

But winter weather, though long delayed, at last got here in tremendous form, and these poultrymen, the writer among the rest, staid close by the fire, while Jack Frost crept into their poultry houses and spoiled the combs of their fowls. The little crevices were forgotten, as they always will be, when the attention which they need is not given to them at the right time.

He who would keep poultry successfully in this northern country, must know that the house must be warm and free from draughts. The warmth of

the ordinary horse barn is not sufficient for the poultry house. Double windows and double walls, paper lined, is the way it should be built. It seems like going to a great deal of expense, but the builder will be well paid for the outlay. To do less than this is to take a lot of hens on your hands merely for the pleasure of feeding them and waiting on them during the winter. The income from them will nearly always be disappointing. It is the added warmth which brings the eggs. Hens that are quartered in such a house will not quit laying when the cold snap comes. They do not feel the full force of the change. These intensely cold spells are of short duration, but the fowls must be secured against them while they last. Such warm poultry houses may not be needed but a few days in the year, but, as the old frontiersman said of pistols in Texas, "when you do need 'em, you need 'em powerful."

"MAKE HASTE SLOWLY."

We assume that some of the readers of the MESSENGER are merely prospective poultrymen and fruit-growers. They are not yet actually engaged in that kind of an occupation, but expect to be so engaged sometime in the near future. They are scanning the pages of the paper for information which will be of service to them when they shall have adopted this line of work as a regular means of a livelihood. We believe that no better counsel can be given such persons than to warn them of the danger of attempting too much at the start.

No one of ordinary judgment will enter upon such a pursuit, as a matter of choice at least, without first equipping himself with such theoretical knowledge concerning it as it may be possible for him to obtain. This kind of knowledge is always faulty, as everybody knows, but the beginner must make the best use of it that he can until he is able to lay it aside for that which has come to him in the field of actual experience. Let him then join his theories with his good common sense, and let them confine the task which he is about to assign to himself safely within the limits of his capacities. Don't make the fatal mistake of laying out for yourself more than you can perform. If you do your task of necessity will be only half done, and the disappointment and failure which will follow will be most discouraging. Many beginners in every way fitted for making a success of this kind of a vocation, have allowed such a mistake as this to drive them permanently out

of it. The writer well remembers how narrowly he once escaped sacrificing a valuable property as the result of the discouragement growing out of just such an oversight as we have been speaking of.

We believe that three-fourths of the failures in fruit culture or poultry keeping, or where an effort is made to carry on the two in connection, is due to the fact that the parties undertake to do too much, and, therefore, do nothing right. The outcome could not be otherwise than disappointing, and the pity of it is, it often brings about a complete reversal of life plans which were wisely laid but not wisely carried out. The parties are led to believe that they have made a grievous mistake in embarking in such an undertaking, and that the sooner they desert it for something else the better.

The useful lesson which they might have learned from their mistake is thus thrown away. And so, fearing that some young readers of the MESSENGER may make no better use of such a hard lesson than others have done, we feel like putting them on their guard against this danger, hoping that we may thereby be the means of shortening to some extent the long procession of failures from this cause.

Don't Waste the Waste.—Save the potato and apple parings, the waste portions of the beets and cabbage, and everything of this nature, and boil them all together in an old kettle kept for that purpose. When well cooked, and immediately after removing from the stove, stir in some meal, and set to one side until cool enough to feed. The mixture will be all the better if some meat scraps are put with it. If one will get into the habit of saving all such waste as the above he will be surprised at the amount of it which can be got together. The refuse from the kitchen of a family of ordinary size will more than half keep a flock of twenty hens.

Coal Ashes for the Poultry Yard.—If nothing better in the shape of charcoal is available to you, roughly pound up the partly consumed coal and cinders which are carried out with the ashes from the soft coal stove, and place them where the chickens can get at them. Even fowls which always have plenty of grit before them show great eagerness for scratching in the ashes and cinder, in which they appear to find many bits very much to their liking.

The grit must be sharp to be of service to the fowls. Small round pebbles, such as are found in the gravel pits, are of no advantage to them.

KEEP THE LARGE AND SMALL BREEDS APART.

It is a bad mistake to keep hens of unequal size in the same yard. Under such circumstances it is not possible to regulate the feed so that all will get their due proportion. The smaller birds, by reason of their greater activity, will secure more than their share, and will become too fat to be profitable as layers. The larger ones will be half starved unless the feed has been greatly in excess of the amount which should ordinarily be provided for a coop of a given number of birds.

The writer has seen the bad effects of this the past winter in a yard containing Wyandottes and Polish fowls. The owner was careful to see that his Wyandottes did not suffer for the lack of feed, but in so doing the Polish probably received double what they ought to have had. The latter are rated as good winter layers, and under proper conditions they are a profitable breed to keep for that purpose. But this particular lot of Polish hens did not lay one egg during the whole winter. The owner, who is an experienced poultryman, attributes the trouble entirely to the extreme fatness of the fowls. The Wyandottes, on the contrary, commenced laying in November, and did not miss a day the whole winter through.

We have noted similar results where Light Brahma and Plymouth Rock hens were yarded together, except in this case the production of eggs was on the side of the lighter breed. The feed was restricted to the quantity which experience has shown was proper for the number of hens in the yard. The Plymouth Rocks robbed the Brahmas of at least half their share, but as the former outnumbered the latter two to one, the surplus amount was not enough to cause them to be greatly overfed. Of course they took on more fat than it was best for them to carry, but not to such an excessive degree as would seriously interfere with the production of eggs. As layers the Plymouth Rocks did not fall far below the average of this breed, while in this respect the Brahmas were an absolute failure. The experiment was repeated the following year with identical results.

The effect of yarding two such breeds together is to destroy the usefulness of one or the other of them. And the expense of maintaining the one from which no returns are obtained is simply money wasted. To stock a yard with two breeds which differ in this way is never a wise thing to do.

The hatching season. Keep in mind the importance of fertile eggs.

NO LACK OF FEED.

The writer was interviewed a short time ago by a farmer friend who wanted to know what it was necessary for the poultryman to do in order to get the hens to lay in winter. This man built a new poultry house last summer, and had gone to expense and trouble enough to make it a comfortable place for the fowls. His flock was composed mostly of half blood Light Brahmas, and, taken altogether, it was really a good looking lot of chickens. But after the cold weather set in these hens would not lay an egg, and the owner felt cross enough toward them to wring everyone of their necks. He was sure that their failure to lay was not because they did not have enough to eat, because he never fed them less than half a bushel of shelled corn at a time. A question or two from us elicited the fact that shelled corn was the only feed which these hens got. The owner lugged it into the coop half a bushel at a time, as he said, and dumped it on the floor. When that was gone he brought in some more, and for a week or two weeks at a time when the weather was too severe for the hens to leave the coop, they did not get a taste of anything but the corn, and yet this man thought he was treating his chickens well. He had heard that hens would lay plenty of eggs in winter if rightly treated. And if he gave them a warm house and abundance to eat, he couldn't understand what else any right minded hen could ask for.

This man possesses sense above the average of people. He is capable of giving sound advice in relation to matters wherein one man often feels constrained to seek counsel of another. He is a fairly prosperous farmer, and is looked upon as a man who understands his business. Our only object in writing this is to show how a man may have chickens about him all his life, how he may look after them and care for them after a fashion, and yet be wholly in the dark in regard to the simplest things which are required to make them profitable. And though a sensible man, he may show just no sense at all in a matter of this kind.

When to Ship.—In sending live poultry to market ship so as to have it reach its destination from Tuesday to Friday. The market is more likely to be overstocked the last of the week than any other time, and stock carried over Sunday does not present an inviting appearance on Monday. The commission merchant is usually put to the necessity of selling such stock at a sacrifice in order to get rid of it at all.

YELLOW SKIN AND WHITE SKIN.

Yellow legs and a yellow skin do not make a chicken any better for the table than one of dark legs and white skin. The chicken eating American public have a weakness for the yellow skin, and, therefore, the poultryman who raises fowls for market will act wisely in selecting a breed with skin of that color. Not because they are really any better by reason of their yellow skin, but because the public thinks they are and will not buy them if it is otherwise. The yellow skin will give nearly every Englishman who looks at it the horrors, but then the most of American poultry keepers are not raising chickens to suit the English palate. But everybody knows that the English are excellent judges of everything in the line of good eating. When the Englishman wants to dine on poultry he selects a white skinned fowl every time. People are sometimes heard to say that they would not keep anything but a yellow skinned fowl, as they always possess table qualities superior to those having a skin of any other color. We guess this is a mistake. A Plymouth Rock is not any more palatable than a Dorking. It would require an epicurean taste to decide between them, and if the question was decided on its merits, there would be more than an even chance for the decision going in favor of the Dorking. But as we said before, yellow skinned chickens are the fashion in America for table use, and poultrymen must cater to this notion. It sounds odd though to hear a person express the idea that there is no first-class chicken flesh except that which is enclosed in a yellow skin.

Chicken Cholera.—People who have tried the following remedy for chicken cholera claim that its use is always attended with benefit: Alum, copperas, cayenne pepper, sal sulphur, saltpetre and resin, equal parts. Dose, two tablespoonfuls for twelve fowls. Mix with meal and feed on first appearance of disease once or twice a week. It is best to feed early in the morning, as they are then not so apt to refuse it. Some advise giving the remedy once or twice a month as a preventive.

Keep Them at Work.—Scatter a spoonful of wheat in the scratching pen, or, if there is none, in the litter on the floor of the poultry house, as often during the day as you go by it. The constant exercise which the hens are thus induced to take is just what is needed to keep them in right condition.

FARMER POULTRY KEEPERS.

Farmers as a rule are of the opinion that they have too much other work to do to pay very much attention to the chickens. If they provide a house for the fowls which is fairly comfortable, and see to it that they do not suffer for feed or water, they think that they have done the utmost for them that they can and properly respond to the pressure of their numerous other duties. The various little attentions which are demanded of the owner for the keeping of the flock in a perfect state of health, he has not the time to bestow upon them, or at least he believes he has not. And in the failure to give these little attentions he cuts himself out of the principal share of his profits. In certain parts of the east it is estimated that it costs a dollar and ten cents to keep a hen a year. The dollar furnishes the house and the feed, and the ten cents pays for the oyster shells, the whitewash, the sulphur and carbolic acid, the insect powder, the kerosene, and various other things in that line "too numerous to mention." The dollar merely keeps the hen. It is the ten cents which makes her return a profit to the owner. Too many farmers are willing enough to spend the dollar who absolutely refuse to shell out the ten cents. This is a good deal like plowing the ground, and sowing the seed, and then declining to go to the expense of reaping the crop.

But a large proportion of our western farmers are finding out that it pays them well to give special attention to poultry keeping. This means something more than good ordinary attention, without having reference to the constant care and labor demanded of one who makes this his exclusive business. They do not raise fancy chickens for exhibition at the shows, but they select one of the medium sized breeds, and pay sufficient attention to their matings to maintain a good average flock of birds of that variety, and are careful not to let their stock deteriorate through the lack of new blood. They store up all the information they can get hold of in regard to the proper methods of caring for poultry, and they put what they learn into practice in a way which brings them in several hundred dollars a year. And when all this is done they find that they have performed just about as much work on the farm as they did before. There is a way of doing it which any farmer can learn if he sets himself about it. No place is so well suited for the rearing of poultry as the farm, and no where else can it be reared so cheaply. The

poultry on the farm is profitable under any circumstances, but the majority of farmers could realize much more from this source than they do, and without any appreciable addition to the burden of their cares.

Poultry keeping on the farms is not carried on in the shiftless, haphazard manner which we would be led to suppose by articles which we frequently see in print. As a rule the management of the poultry there is in accordance with a fairly good system, but the point which we wish to make is that the system could be enlarged and improved upon in most cases without heavily taxing the time and strength of the farmer's household. Our personal acquaintance extends to a number of farmers who are making poultry keeping pay far better than the average of their class. Their crops are about the same as their neighbors, and yet they manage to look after poultry enough to more than half pay the expenses of their family. These are all thrifty, forehanded farmers, and they will all confess that their chickens have contributed in no small degree to their present easy circumstances. Many of them will even tell you that the beginning of their prosperity dates from the time that they started in to make the most of their opportunities in the way chicken farming.

The Broody Hen.—A hen can be cured of her broodiness within two or three days if she is taken from the nest at the very beginning, and placed in the coop prepared for "breaking up" the sitting hens. If she is allowed to remain on the nest over night it will be found a more difficult matter to induce her to "change her mind," requiring usually an imprisonment of at least a week. Examine the nest boxes the last thing at night, and transfer all the hens found there to the "calaboose" at once if you do not want them to sit.

The Greatest Mistake.—Don't fret and fume and worry yourself over the mistakes you made last year in the management of your poultry. You will not repeat those same mistakes, and so in one sense you are better off than you were a year ago. Some one has wisely said that "a man's greatest mistake is made when he sits down to brood sorrowfully over the mistakes he has made."

Scaley Leg.—If you are the owner of a lot of nice chickens, don't allow them to become disfigured with the scaley leg. A little vasoline rubbed on the legs once a month will prevent it.

LET THE YOUNG CHICKS RUN.

Arrangements should be made to give the young chickens which will be hatched the approaching season all possible range. The young stock should not be confined in yards, unless the yards are large, grass grown and shady. But if the best development is desired they should be permitted to roam over a space not measured by feet, but by acres. This will not be possible with everyone who raises chickens, but all should aim to give the chicks the widest liberty which his situation and surroundings will admit of.

It will be noticed that many of the best known and most reliable breeders are careful to state that their young stock is given full range during the summer and fall. This is only another way of saying that the young chicks have been allowed the best opportunity to become as nearly perfect specimens of the breed as possible. These people know that it is not within their power to restrict the liberty of the young chickens to the limits of a small inclosure and yet make of them what they would be under opposite conditions. Some breeds will be less affected by this manner of treatment than others, but it will have a dwarfing tendency upon any of them.

We are aware of the fact that some people claim to be able to yard their young chickens from the time that they are separated from the hen and have them grow up into active, healthy fowls, that prove as profitable to the owner as those which are allowed to range at will. We shall not dispute the word of these people. We have lived in this world long enough to learn that many things which appear incredible to us may be true. And this may be one of them. Perhaps these people can do what they say. They may be in possession of some secret not known to the common run of poultry raisers. But taking our own experience as a guide, and the experience of all the poultry raisers with whom we have had any association, we must say that the great majority of poultrymen cannot raise chickens of the best class in that way. The writer would not fill his winter coops with a lot of hens brought up in that manner if they came to him as a gift.

Don't Feed Raw Meat.—Cook all meat which is fed to the hens. It is never advisable to give it to them in a raw state, except in very small quantities.

The Light Brahmas should be hatched not later than this month.

A BAD YEAR.

The low prices for which poultry sold throughout the country last fall has produced the belief in some minds that the poultry business is greatly overdone. It is perfectly safe to say that poultry was more plentiful in the United States last season than ever before. The dry weather which prevailed over such a large extent of country was hard on the grain crops, but it was particularly well suited for the raising of young chickens. There was no loss to speak of from storms, and, consequently, the proportion of young chickens which lived to grow up to maturity was greater than common. Thus the market was overstocked when the time arrived to make sale of this stock.

The industrial situation also had much to do with lowering the price of poultry. Many thousands of people who had heretofore been regularly drawing wages sufficient to enable them to comfortably provide for all their wants, were out of employment, and compelled to practice the closest economy. They did not eat chicken, because they could not afford to. They might consider themselves in luck if they could pay for the cheaper cuts of beef. The straightened circumstances of these people deprived the poultry raisers of a large per cent of the custom which they had received other years. If this class of buyers had possessed the means to purchase as they had done in the past, it is doubtful if the market would have been overstocked to an extent which would have seriously lowered the prices.

The market is not likely to be overstocked next fall. Two such seasons as the last do not often come together, and poultry raisers are not calculating upon the easy sailing in the way of rearing chickens this season that they had last. Prices will be better this season and there will be less reason for supposing that the poultry business is overdone.

Poultry keeping has its good and its bad years, the same as any other pursuit. There are times when the very wisest management cannot make it return a profit. It has just had one of its bad years. But this is no proof that all the other years which are to follow will be of the same kind. It has fewer such years than horses, cattle, or any other kind of farm stock.

Feed Heaviest at Night.—The hens should go to their roosts at night with full crops. Most poultrymen insist that the last feed of the day should consist entirely of whole grain.

THE WHOLE PROBLEM.

Lice and lack of exercise are the two things, which more than all else besides, make against the health and vigor of fowls kept within confined enclosures. If the owner can overcome the effects of these, he has pretty nearly solved the whole problem of poultry raising within confined limits. The lice can be got rid of no matter in what myriads they may exist. It is no small job to oust them if they have held possession for any considerable length of time, but a persistent, systematic and vigorous application of the usual means employed for their extermination will in the end be effective. But many persons who thus succeed in driving them out are not equal to the task of keeping them out. They can make the onslaught by which the enemy may be started in full retreat, but are lacking in the "eternal vigilance" necessary to prevent him from coming back. Nothing but an incessant warfare will keep the premises clear of the pests. And it is really not such a formidable task provided the right thing is done at the right time, and as a part of a regular system. But irregular and spasmodic efforts in that direction, however thorough, are only a little better than nothing at all, if followed by long intervals of utter neglect.

The needed exercise may be secured by compelling the fowls to scratch for every particle of grain which they are given to eat. Throw the grain in spaded ground in summer, and on the straw-littered floor of the hen house in winter, and keep the hens occupied as much of the time as possible in scratching for it. If allowed to fill themselves from a trough or smooth floor they are liable to contract bad habits which may be the ruin of the flock. It is mistaken kindness to let them have any grain at all, except what they work for. The habitual scratching keeps the blood in circulation and does more toward the prevention of disease than all the condition powders which could be fed to them. And yet it must not be inferred from this that we are opposed to the use of condition powders. We believe they can always be used with benefit, provided they are made according to some well tested formula, and are not fed in excessive quantity.

If it is a possible thing, have scratching pen attached to the poultry house, and during bad days keep the hens employed there as though they intended to scratch the top off the earth. If you will do this, and your method of feeding is anywhere near right, you will

have a healthy lot of chickens which will be a pleasure to look at and a source of profit to you.

A FOOLISH CLAIM.

The general purpose fowl divides the difference between the best laying breeds and those which are valued chiefly for their table qualities. It is the fowl which is best suited to the needs of nine tenths of the people who keep poultry. It answers the double purpose of a fairly good layer, and a fairly good table fowl. It does not measure up to the highest standard in either of these particulars. In becoming a general purpose fowl it sacrifices somewhat in both directions. It is not the best layer, and it is not the best in delicate flavor of flesh, and it can never become either of these and remain a general purpose fowl. Unthinking people, in setting forth the claims of their favorite breed of chickens, will sometimes say that it cannot be excelled either for laying or for table use. This is simply ridiculous. A first-class layer is never a first-class table fowl. It is a physical impossibility. This is a fact which is fully understood by all well informed poultrymen. Consequently when one puts forth such a claim as the above in behalf of any breed of chickens he unwittingly advertises the fact that his judgment in the matter is not of the least account. After such a declaration all that he might have to say in regard to his favorites would not have a feather's weight with experienced poultrymen. These men know that his claims are not true,—that he hasn't got what he says he has. To them he has given positive evidence of the fact that he either does not know anything about poultry, or is making unwarrantable statements for the purpose of deceiving.

Hen Earnings.—Experienced poultrymen of New England and Canada calculate to make a clear profit of two dollars a year on a hen. Three hundred hens are regarded about as many as one man can do justice to if he has any other duties to discharge besides the care of his poultry. This number is divided up into flocks of a dozen or fifteen.

Make Them Movable.—Stationary nest boxes in a poultry house are an abomination. They are double the trouble to clean, and at best are never so well cleaned, as those which can be removed from the house and put in place again. Tear out the old stationary nest boxes and put in the other kind.

THE HATCHING ROOM.

Don't set the hens in the poultry house where they will be subject to annoyance from the layers. A more unfit place could not be selected. If you cannot do any better, make the nest in some sheltered out-door spot, arranging it so that the hen can be made safe at night from marauding dogs and any wild "varmints" which may be taking a stroll that way. If in early spring it must be seen to that the hen is well protected from the cold winds. The owner's ingenuity will probably suggest as good methods for doing this as any which we could describe to him. We shall say, however, that a barrel laid on its side and half buried in the ground makes about as good an out-door nest as anything which can be contrived. The earth which is scooped out for making a cavity for the barrel to rest in should be thrown back into it when in position. It will thus be held firmly in place, and the nest be raised a little above the surrounding level. If the weather is cool some banking on the outside either with stable manure or earth will be necessary. The entrance may be closed with a board.

It will pay any one who intends to hatch out anything over a hundred chicks to fit up a hatching room. This may be the whole or part of some out-building, or, if this cannot be had, a large bin in the barn or granary into which the sunlight may be admitted from the south. If the outside walls are at all open, the apartment should be secured against draughts by lining it with old newspapers held in place by means of laths. No opening should be left anywhere by which hens on the outside could find their way into it, or those on the inside get out. Slatsshould be nailed across the window to protect the glass, if the opening is fitted with a sash, and to prevent the escape of the hens when taken off the nests to feed. We have not found the sash necessary, as the window is provided with a shutter which is kept closed except when the hens are taking their food. If a sash occupies the opening a curtain of some heavy material should be hung before it for the purpose of darkening the room. The floor should be covered to the depth of two or three inches with dry earth. This will act as an absorbent and do much toward keeping down the foul odors arising from watery droppings. Place the dust bath where the rays of the sun will fall upon it through the window, and have it large enough to accommodate several hens at the same time. Build a row of nests along any

of the walls of the room which may be most convenient. Arrange a board to extend along in front and close the entrances, so that each hen may be confined to her own nest. Do not place the nests more than fourteen inches above the floor, and be sure that there is an alighting board even with the bottom of them, from which the hen can step among the eggs with less danger of breaking them.

When one has a place fitted up in this manner a dozen setting hens can be cared for in almost the same time that it would take to look after one. The room can be entered at feeding time and the light admitted by throwing open the cover to the window. Feed and water can be placed on the floor, and the board which shuts the hens in on the nests removed. Such of the hens as do not come off should be lifted off and the board again dropped in place to prevent them from going back until they have taken a sufficient amount of the feed. Some hens become so "rattled" when the brooding fever is on them that they do not want to remain off the nest long enough to eat. If allowed to have their way about it they will starve themselves half to death. They can be induced to eat by preventing their immediate return to the nest, keeping them meanwhile where they cannot get out of sight of the food.

It is usually best for the keeper to be out of the room while the hens are feeding. He can always find a way to employ himself in the coops of the layers during the twenty minutes which should be allowed the setters for taking their feed and treating themselves to the dust bath.

Most of the hens will return to their nests of their own accord as soon as the obstruction to the entrance of the same is taken away. Those that do not possess hen sense enough to go back when the way is open for them to do so, should be caught and gently placed on the nest. In doing this all hurry and excitement must be avoided. Every movement of the keeper should be slow and deliberate. The hen should be approached cautiously, and when seized should be encircled with the hands so as to prevent violent beating of the wings, as this always tends to create a panic among the occupants of the room. If the hen is held half a minute and lightly stroked on the head, she loses her fear after being thus treated a time or two and may be caught and handled after that without greatly startling her. Hens of the crazy-headed, harum-scarum order are bad things to have in the setting room. They are liable to smash an egg every time you approach the

nest, and, besides, their nervousness has a tendency to unsettle the steady ways of their more quiet and better behaved companions. A few minutes, therefore, are well spent in winning her confidence, and reducing her to a more docile condition.

KINDS OF FEED.—The majority of writers on subjects relating to poultry advise that the setting hens be given nothing else in the way of food but shelled corn. In most instances the keeper will do well to follow this advice, as the hens will usually keep in good condition on such an exclusive diet. Bowel troubles in the hatching room are an abomination, and we have found that the hens are usually exempt from anything of this kind when they are given nothing to eat but shelled corn. But it is in this as in everything else, no ironclad rule can be laid down which it will be safe to follow under all circumstances. Occasionally the corn will disagree with a fowl, the effect being the opposite of that likely to follow a too liberal allowance of mushy food. When anything of this kind is observed the rule should be departed from far enough to bring about a correction of the trouble. As we said before, it is seldom that the necessity will arise for making a change. Ordinarily the hens will keep in good health on the corn alone, and at the close of the period will be in better plight for taking charge of their broods than if given a variety of food.

THE NEST.—In preparing the nest a couple of inches of earth should always be placed at the bottom. It should never be entirely composed of straw or other loose material. Slightly moisten the earth and then press it down and shape it to the hen's body. Place on top of this just enough cut straw or chaff to prevent the eggs from coming in contact with the earth. A sod is often used for the bottom of the nest instead of earth, and nothing is better when time is taken to fix it as it should be. The grass side is laid down, and the nest built on the upturned roots. Everything else being equal, the eggs in a nest made in this way will hatch better than in one made entirely of hay or straw. It will be understood, of course, that the earth or sod will not be needed if the nest is built on the ground. It will materially add to the chances of a good hatch to frequently dust both hen and nest with some good insect powder, the writer's preference being Lambert's "Death to Lice."

If from any cause the eggs become befouled they must be taken from the nest and carefully washed in tepid water. It is something of a task to get them clean if the shell is coated over

with the hardened contents of a broken egg and it is not agreeable work either. But it is something which must not be neglected. The eggs might just as well be taken from under the hen and thrown away as to be allowed to remain in this filthy condition, for they will not hatch. If the straw is soiled that should be removed also and a fresh lot put in its place.

If the chicks are to be reared by the hen you now want a warm, dry coop with a slatted opening to the south. The style and pattern of the coop is of no moment. It should be close and warm, with a tight roof which will shed the water in the severest storm, and be securely anchored if in a locality where it is liable to be overturned by high winds. The floor of the coop should be raised above the surrounding level to prevent it from becoming flooded with water in heavy rains. Failure to provide against this danger has cost chicken breeders the loss of many fine broods. We prefer to have the floor of the coop of earth, and after it is placed in position we fill in sufficient soil to prevent surface water from flowing through it. As an additional precaution we take a spade and make a ditch several inches deep about the coop, throwing the earth which is taken from it well up against its sides, smoothing and beating it with the back of the implement to aid in keeping it in place. A close cover should be made for the opening in front by means of which it may be closed up at night or on the approach of a storm. The fastenings should be designed to hold it securely in place against the wrenching of the heaviest winds to which it is likely to be subjected. As a cheap contrivance we have found nothing better than this: Drive a couple of stakes down in front of the coop, and at a distance from it corresponding to the thickness of the door. Allow these stakes to project an inch or two above the surface of the ground. Drop the lower edge of the door between these stakes and the coop, and fasten the upper edge with wooden buttons. During the day, if the weather permits, the door may be laid down in front of the coop and used as a feeding board. This arrangement will not look so well as iron hinges and bolts, and if one cares very much for appearances in connection with such things, the contrivance which we have suggested will be of no interest to him. But it is the aim of the writer of this article to make it helpful to those who are induced to take up poultry keeping for the profits which may be derived from it. If it can be made to serve any

useful purpose at all it will be in saving such persons useless expense in furnishing themselves with the necessary contrivances for housing their charges. The most of them, in the outstart of their career, at least, need to be careful about the small expenditures, and to use all their caution and forethought to confine them within the narrowest limits. Such conveniences as they possess must be, for the most part, the product of their own ingenuity and mechanical skill. And it may be remarked here that these homemade, and truly homely affairs answer the purpose for which they are intended fully as well as the most tidy looking and expensive arrangement which might be purchased at the cost of many dollars.

PERMANENT ROOFS.

What is the use of a roof which is only temporarily water-tight? There are few which are proof against wind, rain and heat very long, unless they have been coated with genuine dark red slate roofing paint, which makes a new slate roof even out of an old shingle affair. It has a heavy and durable body, but is easily applied by any one; will neither rust nor corrode, and enables the owner to save his roof at a ridiculously low cost. Slate paint is elastic and flexible, water and spark proof, and contains no tar.

For new roofs Rubber Roofing has all the merits of metal, all the virtues of slate, and all the good qualities of shingles at half the cost. Careful estimates promptly given if you state size of roof. Send for book circular (free if you mention this paper). INDIANA PAINT & ROOFING CO., 42 West Broadway, New York City. Write at once.

Mr. M. Parrott, who elsewhere advertises eggs from Barred Plymouth Rocks and Black Langshans, is a successful farmer of this locality who for some years back has made a specialty of poultry. His Plymouth Rocks are excellent, and have a reputation which enables him to sell off his surplus stock every year without difficulty. He has not been handling the Langshans so long, but he has a very showy flock of that popular breed. Considering the high quality of his birds, Mr. Parrott has put the price for eggs very low, we think almost too low. But that is his own affair.

Be more concerned about how to prevent disease in the poultry yards than to cure it.

Eggs for hatching may be kept a month if put in a cool place and turned three times a week.

ENCOURAGING WORDS.

Many encouraging words have come to us from different parts of the country in regard to the first number of the MESSENGER. Letters containing such expressions as "It is a good paper, and worthy of a good support," have been received from people who have an opportunity of comparing it with all the publications of its class in the country. It is both encouraging and inspiring to the publishers to have this evidence of approval from people who are so competent to judge of the merits of a journal of this character. We hope we will be excused for publishing the following extract from a letter from the well known breeders, Conley & Co., of La Salle, Illinois. We could fill a large part of our space with others of a similar tone.

"You will get my subscription to your paper as soon as I hear what it is to be. This is wholly on the strength of that article, 'Not a Fortune Making Business.'" This article is exactly as I feel in the matter, and quite the contrary from what other papers say. These misleading accounts are the ruin of many who might otherwise have made life a success. They give up good positions, and, as you say, fairly paying occupations, to make a fortune on a couple of hundred dollars investment in chickens. They have no idea of the experience as well as the hard work required to carry on this business successfully. When noted authorities say that there is more profit and less work in forty chickens than in one cow, is it any wonder that so many embark in the business only to give up in disgust at the end of a year. You are honest, and I hope that you will succeed in your endeavors to prevent foolish people from rushing pell mell into misfortune. Conley & Co., are doing nicely now, but it has been only after much unnecessary work and annoyance, all of which was the result of untruthful articles in the poultry papers. We started in with eight breeds, have cut down to six, and will dispose of three or even four more before the year ends, making Minorcas and R. C. Leghorns our only breeds."

If you are keeping chickens for eggs you should be getting abundance of them at this time. If you are not, we are measurably safe in saying that it is not the fault of the chickens.

A hen is always extremely fat when she wants to set. If the hens are kept in only moderate condition, and not allowed to become over-fat, the tendency towards broodiness will to a large extent be done away with.

The Poultry Messenger,

AND

Western Fruit-Grower.

Published the first of every month by
The Messenger Company,
AURELIA, IOWA.

Subscription Price, 25 Cents per Year.

ADVERTISING RATES.--Sixty Cents per inch, each insertion. Contracts under these rates will be limited to six months.

Breeders Cards.—Set in plain type, without display, one cent per word each insertion. No advertisement inserted for less than 25 cents.

Short, pointed communications on any topic related to either poultry-keeping or fruit-growing, are always acceptable. Write plainly, and on one side of the paper only.

All reputable journals endeavor to protect their readers from the designs of fraudulent advertisers. None of them will accept advertisements which they have any reason for believing are intended to mislead or deceive. But the intelligent reader will understand that it is not a possible thing for a publisher to wholly exclude from his columns the advertisements of dishonest people. In spite of all his care and watchfulness an advertisement will sometimes be printed which would not have been accepted on any terms if its true character had been suspicioned at the time that it applied for a place in the paper. Publishers are to a considerable extent dependent upon their readers for information relative to the character of their advertisers. There are certain unmistakable ear-marks by which the most bare-faced frauds are easily detected: but there are others whose true intent is so skillfully veiled that no one would suspect the dishonest purpose behind them. They are admitted to the columns of the most respectable publications without question, and the first intimation the publishers have of their true character is a letter from some victim telling of the misuse he has met with at the hands of the parties who had inserted the advertisement. If after proper investigation this report proves to be correct, the advertisement is at once thrown out of the paper, but this does not undo the mischief which has already been done. The most cautious and wide-a-woke publisher cannot make himself entirely safe from the danger of being imposed upon in this way. The protective associations make it impossible for such an advertiser to thus deceive more than one publisher within the limits of a large territory, but there appears to be no

means of avoiding the damage which may result from that one publication.

This paper, in common with all other reputable journals, will have no dealings with advertisers except such as it believes will carry out in good faith all that they promise; but we cannot say that no fraudulent advertiser will ever find a place in our columns. We pledge ourselves, however, to do all in our power to prevent anything of that kind, and trust that we will have the assistance of our readers to that end.

The subscription price of the MESSENGER is only 25 cents a year.

Take note of our low prices for job work. We can suit you on note heads, envelopes, cards, shipping tags, and all work of that class. Give us a trial order.

There is no need of any one being swindled in the purchase of fruit trees. There is a perfectly safe way for everyone to get what he wants in that line, and what he pays for. There is no excuse for not knowing what that way is. It is about time for a man to be ashamed to admit that he has been swindled by traveling tree peddlers.

Send us the names and addresses of twelve persons in your locality who are interested in poultry keeping, and we will send you the MESSENGER a year without charge. It should be understood that we want the names only of those people who give special attention to poultry. All farmers keep poultry, but the names of farmers are not desired except in cases where poultry keeping is made more of an object than is the usual practice on the average farm. The reader knows what we want. Be fair with us, and do not send us the names of people whom you should know it would be a perfect waste of time for us to correspond with.

Let it be understood that there are some people who cannot learn to keep poultry successfully. It is prompt attention to small details which counts in the poultry yard, and people of a confirmed careless habit are incapacitated for the kind of work which this implies. And yet we have known just this kind of people to engage in poultry keeping because they thought it would be an easy way for them to make a living. A careless or indolent man is liable to make a failure of almost anything he undertakes, but there is nothing in the whole range of human employments which is so wholly unsuited to a man of this description as poultry keeping as a business.

This number of the MESSENGER will go to two thousand people who are not subscribers. These persons are earnestly requested to allow us to write their names on our rapidly growing subscription list. We know that the paper is worth twenty-five cents to anyone who keeps a flock of chickens. We are sure that no poultryman who will take the time to examine it will dispute that fact. This is only half what is usually asked for poultry journals which are no larger and no better. Examine our clubbing lists, and take note of what we offer there for fifty cents and one dollar. We claim that it is impossible to secure a better lot of publications for so little money. Many people who read this have been in the habit of paying as much for one of these papers as we are asking for two and three of them. If there are any publications in the list with which you are not acquainted, and you would like to see them before accepting one of our clubbing offers, write to us for sample copies, and we will have them sent to you from the office where they are published.

The firm of Boquet & Heath, of St. Paul, is well known to many poultry raisers throughout the northwest. Poultrymen of this immediate vicinity who are their regular customers tell us that they do not want any better firm to deal with. We can assure our readers that they will be treated right in all business transactions which they may have with this firm. Those who are in need of poultry netting will find it to their advantage to read their advertisement and take note of their prices on that class of goods.

The cut on first page of cover is a correct illustration of the White-Crested Black Polish fowls owned by Mr. P. D. Wine, of this place. He has a fine flock of these truly handsome birds, and through his advertisement in the MESSENGER and other papers is receiving numerous calls for eggs. Mr. Wine is the cashier of the Farmers and Merchants Bank, but finds time to look after several flocks of fine poultry, and makes it a point to keep nothing but the best.

When two persons or more are engaged in sending out specimen copies of a paper a name will sometimes be repeated, causing more than one copy to go to the same address. Those receiving two copies of the MESSENGER will place us under obligations to them if they will hand one of them to some acquaintance to whom a publication of its class would be of interest.

Western Fruit - Grower.

The Apple Orchard.

In presenting our readers with the following collection of articles we are of the opinion that we are laying before them something of much value. The writers are all practical horticulturists, and their names are familiar to all fruit-growers throughout the state, and some of them throughout the entire northern half of the country. No set of men is so well qualified to give sound advice on the subject about which they write as they. Nearly all of them are giving their whole attention to this class of work, and have been so engaged for years. In their own experience these writers have found out all that is certainly known concerning the adaptation of varieties to location and climate, mode of planting, and all else in relation to the difficult problem of fruit-growing in the northwest. We are sure that our readers will find much in these papers which will be helpful to them. It should be explained that the articles were all written in reply to the two following questions:

1. What in your opinion is the correct distance between the rows of trees of an apple orchard, and between the trees in the row?

2. What varieties would you advise a farmer to make choice of who was going to set out an apple orchard of 100 trees, and how many of each variety?

BY ELMER REEVES, WAVERLY.

It seems that we have learned but little in orcharding in North Iowa compared with the labor and expense in planting trees. Each year there are great numbers of trees planted and these cost in the aggregate, a large sum.

One trouble has been the planting of varieties not suited to the climate, but this is not the greatest trouble. Lack of care, either through ignorance of the needs of trees, or a willful neglect has caused the loss of the greater part of those planted.

On the drift soils of Iowa, any good soil that is well drained is good for an orchard providing the subsoil is clay. It is useless to try most varieties of the apple where the subsoil is sand or gravel.

A north or east slope is best, while a south-west is least desirable. Protection by a grove on the south and west is valuable but it should not be so placed as to enclose the orchard space too closely. Protection by a barb-wire or other good fence is necessary, as stock

and trees do not grow well on the same ground. In an orchard of large trees a moderate pasturing with hogs or sheep is the proper thing, but it must not be carried to the extent of allowing them to bark, rub or otherwise injure the trees. A tree is a live thing, and a bruise injures it as certainly as it does an animal. Each bruise takes time and vitality to heal and weakens the life of the tree.

Distance apart to plant will always be a point upon which people will differ but it is not as important as some would believe. Trees will thrive if well cared for whether they be ten or forty feet apart. My last orchard is planted in rows thirty feet apart and trees twelve feet apart in the rows. When I plant again the rows will be about twenty four feet apart and in the row will have the Oldenburg, Hibernial and all hardiest trees twenty feet apart, and those less hardy about twelve feet apart. However as before stated the distance is not an all important point. Planting close in rows north and south affords a slight protection but not enough to be a means of saving the trees. Borers should be kept out. Many trees are killed by borers and the climate blamed for it. Wire screen, such as is used for doors and windows, placed about the trunks of trees will keep out borers and also keep mice, rabbits etc. from injuring the bark.

As to varieties the Duchess of Oldenburg is a standard, and should be in every orchard, and the larger number of them there is the better. North Iowa grows the Oldenburg to perfection, and they will soon be grown in such quantities that buyers will regularly come for them and pay a good price for them on the trees. Plant lots of Oldenburg, the more there is planted the better, and no part of the farm will pay better. Of other varieties I believe it will pay to plant any of the old sorts—even the Ben Davis—for a family orchard, and with proper care these old sorts may be made profitable.

In 1891 I obtained the opinion of over fifty fruit men on varieties adapted to our needs. Of course all had not tried many of the new sorts, and a full trial would somewhat change the list, probably in favor of Hibernial, Anisim and a few other very hardy new varieties, but the consensus of opinion gave the following list in the order named: Oldenburg, Wealthy, Tetofsky, Haas, Whitney, Fameuse, Talman's Sweet, Longfield, Walbridge, Kaump, Hibernial, Patten's Greening, Plumb Cider, Roman Stem, Malinda, Yellow Transparent, Golden Russett, Ben Davis, Pewaukee, Willow Twig, Red Astrachan,

Brier's Sweet, Wolf River, Peter, Cross, McMahon, Recumbent.

Many other varieties were named by different ones, but these received enough votes to place them in the list. Of course this is too large a list to plant for a family orchard, but a selection can be made from this to suit the individual taste.

All these may be made profitable if properly cared for, but if neglected but few of them will pay for planting in this or any other state. We must learn to care for our trees before we can obtain best results or even make them satisfactory.

Martha crab should be added to the list as it is the best crab we have although as yet but little known. Also Minnesota crab.

BY JOHN WRAGG, WAUKEE.

I have long been of the opinion that 25 feet is a very safe distance for orchard trees, each way, and the two last orchards I have planted on my own place has been only 22 feet each way. It is hard to get out of old ruts. We think of the old orchards of the eastern states planted 35 or 40 feet, and that were in bearing at seventy-five years of age, but in Iowa, especially the north part of the state, different conditions exist. Trees grow much slower and outlive their usefulness at a much earlier age, and there is nothing gained by planting so far apart, except facility in cultivating or caring for such crops as may be grown in the orchard. Should I plant a new orchard and wish to obtain the best conditions possible, I would put the rows 30 feet apart, and on a line cast by the shadow of a perpendicular at one o'clock, p. m. In these rows I would plant 16 feet apart, putting the first ten at the south end of each row of some hardy sort, and of as upright growth as possible. The object is, that at this distance the top of each tree, in a few years, will shade the trunk of the tree north of it at the most critical time, when the sun is low in February and March, and thus in a measure prevent that dread disease, sun scald. Trees at this distance will, with good care, yield crops that will pay for themselves many times over before they interfere with each other by natural growth. What would I plant in an orchard of one hundred trees. I can not do better than to copy the list I have just this morning made for a friend in Carroll county, with such changes as may be of value much farther north.

Summer—5 Duchess, 5 Coles Quince, 5 Yellow Transparent. Fall—5 Longfield, 5 Utter Red, 5 Wealthy, 5 Snow.

Winter—10 Jonathan, 10 Ben Davis, 5 G. Golden, 5 Red Winter Pearmain, 5 Mann, 5 Mc Intosh, 10 Iowa Blush, 5 Roman Stem, 3 Tallman's Sweet, 2 Price's Sweet, 5 Mc Mahon.

This list, I am aware, will be objected to by many. Perhaps no two horticulturists would make precisely the same list. I have kept in view hardiness of tree, quality of fruit and good bearing habit of tree. All the good qualities seldom go together. A good plan is to find what varieties do well in the neighborhood where it is designed planting an orchard.

BY M. E. HINKLEY, MARCUS.

Your questions are of that class which are hard to answer specifically.

Soil, climate and varieties must be considered.

In general it should be understood that plenty of room, and thorough culture tend to lengthen life and fruitfulness.

It is now customary to alternate the early bearing and short lived varieties with the more sturdy kinds whose usefulness comes later.

By the time there is injurious crowding the first will have passed their prime and can be removed.

Soil has much to do with the selection. Some varieties which would surely fail upon the Maple bottoms, would succeed perfectly upon the Little Sioux bluff sides.

To secure hardiness of trees, the farmer who plants upon rich, level land, must be content with poorer quality of fruit than his more fortunate neighbor, on the bluffs.

I would not advise any farmer to plant a large orchard until he has his own carefully reached conclusions on your points.

He should take the reports of our horticultural societies which have been working for years to collect and disseminate the results of experience.

In the volume which will be ready within a month, there may be found recommended lists. A dollar sent to the Secretary, Prof. Budd, Ames, will bring it to your postoffice.

BY B. F. FERRIS, HAMPTON.

Replying to your favor of March 1st, respecting varieties of apple trees, and distance apart, I will say in my opinion cold storage will change our varieties some and top-working or double-working will make it possible to have many of our good keepers that it has been thought impossible to grow in north Iowa.

In giving a list of apples of 100 trees

for family use, a person must make it too long to seem reasonable, or leave out some that would be sadly missed by their acquaintances.

No two men will agree as to varieties on account of personal experience, location and soil, but as to distance I believe we are more united. I will enclose list etc., and ask to be favored with copy of others' opinions.

Distance of apple trees 20x20 feet. While some varieties require three times the space that others do, for the sake of appearance and convenience, they must be planted equal distances.

I would plant 10 Oldenburg, 10 Wealthy, 10 Kaump, 10 Plum Cider, 5 Walbridge, 2 Talman's Sweet, 2 Longfield, 2 Tetofski and 4 assorted crabs. The balance good winter apples on top of hardy stocks.

BY E. M. SHERMAN, CHARLES CITY.

Yours of the 1st at hand, and in reply will say I think taking fruit trees as they run, and taking into consideration the economy of space, as well as the good of the orchard, one could not do better than to plant their trees 24 feet apart each way. Some good authorities would make this 32 instead of 24 feet, but I think in this latitude 24 feet is sufficient. If I were planting an orchard of 100 trees for home use in northern Iowa, I would plant as follows:

6 Yellow Transparent, 6 Tetofski, 16 Duchess, 4 Iowa Beauty, 4 Brier's Sweet, 4 Martha, 4 Whitney, 4 Plumb Cider, 4 Fameuse or Snow, 20 Wealthy, 4 Wolf River, 10 Patten's Greening, 10 Northwestern Greening, 4 Malinda.

I would advise the planting of more of some of these varieties if it were not for the fact that they are as yet new and untried. I have endeavored, however, to exclude from this list varieties that could be classed as entirely experimental, and believe that in proper planting of the above list you will have a permanent orchard.

W. B. CHAPMAN, CORRECTIONVILLE.

I should put the rows north and south 35 feet apart, and the trees about half that distance in the row.

I should plant Duchess of Oldenburg, Wealthy, Longfield, Wolf River, Whitney, Scott's Early, Hibernial, and Tetofski, and mostly of those first named.

BY J. C. FERRIS, HAMPTON.

I would plant Duchess of Oldenburg 25, Wealthy 50, Recumbent 10, Kaump 15,—2-year-old trees. In rows 30 feet apart from east to west, and 15 feet between the trees from north to south.

The close planting is intended as a protection from sun scald. When tops of trees spread the orchard may be thinned to 30 feet each way.

If I wanted a winter apple orchard I would plant it two or three hundred miles south of Aurelia. The varieties named are as much at home here as they would be in any other locality I am acquainted with.

R. A. LEWIS, CHEROKEE.

The distance between rows, and also between the trees in the rows, depends somewhat on the kind of trees. The rows of Plumb Cider, for instance, should be 24 feet apart, and the trees 18 feet in the row, Wealthy 22 and 16 feet, Duchess 20 and 16 feet, Whitney 18 and 14 feet, Milton 18 and 15 feet. The above three varieties, with the Iowa Blush, are as good as anything that I know of, and for the crabs take the Milton and Whitney. As for plums, the De Soto, Wolf, Rockford and Hawkeye are all good. They can be planted in rows 15 or 16 feet apart, and 10 to 12 feet in the rows.

Thinking that it may be of value to some of your readers, I send you a list showing the number of trees to the acre at given distances

DISTANCE APART.	NO OF TREES.
One foot each way.....	43,500
Two feet each way.....	10,890
Three feet each way.....	4,840
Four feet each way.....	2,722
Five feet each way.....	1,742
Six feet each way.....	1,210
Eight feet each way.....	681
Ten feet each way.....	436
Twelve feet each way.....	302
Fifteen feet each way.....	194
Twenty feet each way.....	135
Twenty-five feet each way.....	69

J. A. DEWEY, KINGSLEY.

In compliance with your request I give you my opinion as briefly as possible on a few main points in setting an orchard for farm purposes.

Choose a northern slope, prepare the ground thoroughly by subsoiling, then make the ground as fine as you would for a flower bed. Stake off ground in rows 25 feet apart, trees to be set 20 feet apart in the rows, which should run north and south. Make holes large, Never expose roots to the air longer than a moment, and slant trees toward the two o'clock sun, at an angle of about 30 degrees.

I would recommend the following named varieties, which are among the hardiest, and which will furnish fruit from August to March. For an orchard of 100 trees the following will be found to be a very good variety.

Summer—Borvinsky 4, Tetofsky 4, Summer Sweet 3, Whitney No., 20 4.

Fall—Rombom Queen 5, Recumbent 5, Raspberry 5, Oldenburg 5, Ben Davis 5. Early Winter—Hibernal 10, Silken Leaf 10. Winter—Veronish Red 20, Winter Stripe 20.

If the above are well cared for good returns should be expected.

BY EDSON GAYLORD, NORA SPRINGS

Setting apple trees in the eastern or middle states, and setting them here in the northwest, brings up two very different sets of combinations and conditions for our consideration. In the former states apple trees do much the best where so set as to receive all the dry air and hot sun. In the northwest we find our trees thriving much the best where the conditions are exactly the reversed. They are troubled with too much cool, damp atmosphere, we with too much hot and dry atmosphere. They clean away so as to give the sun its best chance to warm and dry up the roots and the tops. We do our best to check the force of each. I can hardly retain my patience with anyone who after all the light which has been given on this subject still persists in setting his orchard trees in square blocks thirty five and forty feet apart each way. After setting trees forty years in the northwest I have now adopted two plans. The plan I have the greatest confidence in is in setting the rows in the line of the sun at half past twelve, north and south. Set three trees in each hole, and each clump about eleven feet apart. If all were Tetofaska or Whitney and in southern Minnesota or north Iowa I would set them not to exceed nine feet in the row. The rows I would set thirty-five or forty feet apart and if more land than trees, would set the rows fifty, or even sixty feet apart. This would give a fine chance to cultivate to other crops for many years. But if I had only space for a family orchard of one hundred trees, I would set the trees from nine to eleven feet in the row and rows from thirty to thirty-five feet apart on same line, one tree in each place, and each tree leaned about on a common writing slant. This forty-five degree slant we read so much about is ruinous in the end. It has proved to be too much of a good thing, often making the remedy worse than the trouble we try to obviate.

For the farmers orchard of 100 trees I would set 50 Hibernal, 25 Duchess, and 25 Virginia Crab. If I could secure five of the Shields and five of the Tonka Crabs I would lessen the Duchess to fifteen. These I should count only as stock trees, except about five of each of Duchess and Hibernal. I would give

them a vigorous growth of from three to five years, and then top-work them nearly all with such choice varieties as our most reliable fruit men bring to the front at the time when I am ready to top-work them in the branches from seven to twenty-seven inches out from the head or main stem. By this plan I would secure a more reliable and a more desirable list of varieties than by following the old practice of trying to grow them on their own stems. If you ask me to select a hundred trees for a home orchard to be grown on their own stems, I must ask to be excused from advising what I would not do under any consideration.

My list will be made with the express understanding that all to which a star is attached are to be grown only by top-working on extremely hardy stock. The list is given very much as I am now putting in practice on my own grounds, except that I have a great many more varieties. I hope that you will study the subject of increasing our choice varieties by top-working, and keep it before your readers. It is destined to give us a much shorter and surer road to success than can be found by either the Russian or the seedling routes. It must not be supposed that top-working will lengthen the time of bringing the trees into bearing condition. It will have just the contrary effect as a rule. The Malinda, for example, seldom bears under fifteen years on its own stem. When properly top-worked this period is shortened to three or four years. Following is my list:

Summer—5 Duchess, 2 Transparent*, 2 Tetofaska, 2 Brier's Sweet, 2 Whitney No., 20, 2 Charlemoff. Late Fall—5 Fall Orange*, 5 Plumb's Cider*, 5 Fameuse*, 11 Utter's Red*. 15 Peter*, 2 Hyslop, 5 Dyre, 2 Vista, 2 Wolf River. Winter—6 Malinda*, 13 Northwestern Greening*, 5 Minkiers*, 3 Scott's Winter*, 5 Ben Davis*, 2 Grime's Golden*, 2 Jonathan*.

The following list is furnished by Mr. M. H. Nickerson, of Nora Springs, a friend and neighbor of Mr. Gaylord:

2 Yellow Transparent, 5 Tetofaska, 3 Whitney No., 20, 25 Duchess, 25 Hibernal, 25 Wealthy, 5 N. W. Greening, 5 Scott's Winter, 5 Malinda.

The last three should be top-grafted. The Wealthy are better top-grafted in the limbs of Duchess, Hibernal or Virginia Crab. Trees should be well cultivated during the growing season.

BY W. M. BOMBERGER, HARLAN.

For a farm orchard of 100 trees I would advise

10 Longfield, 30 Duchess, 20 Wealthy, 2 Tetofaska, 2 Whitney, 8 Kaump, 5 Patten's Greening, 5 Hibernal, 3 Iowa Blush, 5 Scott's Winter, 5 Anisim, 2 Minnesota Crab, 2 Hyslop, 1 Brier's Sweet.

If orchard is top-worked I would use same sorts, top-working all on Virginia Crab, excepting first three sorts; but would top-work Wealthy on Duchess stocks.

Plant trees 15 by 26 feet, close distance north and south. Have grove on west and south.

THE ORCHARD HAS NO CHANCE

It is alleged by persons who claim to be close observers, and who have become confirmed in the habit of using their powers of observation on every cluster of fruit trees which they meet with, that not one orchard in fifty has the least chance to produce good fruit. It appears to be a fact that only a small proportion of the people who own orchards have taken the pains to find out what is necessary on their part to bring them into a high state of productiveness. The orchard is generally neglected, and in the majority of cases its unprofitable condition is due to that fact and nothing else; but all of the unprofitable orchards have not become so in consequence of neglect. Many of them receive attention enough, but unfortunately it is attention which is not intelligently bestowed. It is not a big job to properly care for an ordinary farm orchard if one knows what to do, and all that is necessary for him to know is easily learned if he will only take advantage of the means at hand for becoming posted on that subject. But no man will have a successful orchard in this northwestern country unless he in some way puts himself in contact with those who are giving special attention to horticulture. He must read the horticultural reports, or publications, or else come into association with men who do this. A man who neglects to thus inform himself may give a great deal of time and labor to his orchard, and produce about as much harm as good in all that he does there. Orchard on the prairies of the west is in many important particulars different from orcharding east of the Alleghanies. However successful a man may have been with his orchard in the east, he will make a total failure of that kind of an undertaking here unless he is willing to materially alter the plans which were attended with good results at his former home. Much labor and valuable time are thrown away by people because of their slowness to accept this as a fact.

Brief Mention.

A greater variety of apples is grown in New York than in any other state.

Prominent Iowa fruit-growers contend that Oldenburg and Wealthy apples can be grown at a profit at twenty-five cents a bushel.

It is said that the disagreeable flavor of the black currant can be removed by immersing the fruit for a few minutes in boiling water.

Try planting a few of your early tomatoes on poor soil. This plan is recommended by successful market gardeners. They claim that the ripening period is in this manner hastened at least two weeks.

It is believed by many people that the yellow roses are breeders of slugs to a far greater extent than other varieties, and such persons will not allow the yellow rose a place on their premises.

Don't be in any rush to remove the covering from the blackberry and raspberry vines, in the belief that the winter is over and they no longer need the protection. Let it remain until the first of May, no matter what the weather is in the meantime.

Severe pruning at the time of planting is not advisable. This is contrary to what was the common practice years ago, but the greater part of the best authorities say that heavy pruning at the time of planting is liable to do more harm than good.

Extravagant claims are made for the Longfield apple by some fruit growers. It has been asserted by some parties that it is worth more than all the rest of the list of apples which can be grown to any advantage in the northwest. This is claiming too much. The Longfield is a good variety—one of the best we have; but there are others which are entitled to rank as its equal.

Green clover is recommended as a mulch for blackberry and raspberry vines, and is probably the best material which can be used for that purpose. The vines are cultivated the early part of the season until the berries begin to form, and the clover is then spread over a space two feet wide in the rows. There are fruit-growers in Iowa who use many tons of clover in this way every season. The clover is preferred to straw on several accounts. It forms a denser mulch than straw, and yet does not seriously interfere with cultivation the following season, as it decays within the year and does not clog before the plow.

Trees which have been exposed longer than they should be after leaving the nursery, and show the effects of this exposure by taking on a shriveled appearance, should be buried for a few days, or a week, before being set out in the place which they are to permanently occupy.

One of the best protections against sun scald is to have trees with no trunks to scald. A horse can be ridden under most of the apple trees of the east, but it will not do to grow trees in that shape in the northwest. Many of our best informed fruit growers argue in favor of trunks not exceeding a foot in length.

The Fay currant, which was regarded as such a promising variety a few years ago, is now set down as pretty nearly a failure in many parts of the country. The bushes are being dug up in places where acres of ground had been planted to them. Those who want to raise currants can hardly do better than to stick to the old sorts.

Fruit trees are not out of place in the front yard. Those of a regular, upright growth are fully as ornamental as the ordinary shade tree, and nothing can be prettier at the time of blossoming. Where there are only a few cherry trees on the place it is always best to have them near the house, as this makes it easier to protect them from the birds.

Cultivate very shallow about your currant bushes. When you keep the surface of the ground loose and free from grass and weeds, you have done all the good you can do in the way of cultivation. By going deeper you bruise and wound the roots, and start the growth of new sprouts where they are not needed. Deep cultivation about the currant bushes is worse than no cultivation. Many successful fruit-growers do not cultivate their currant bushes at all, believing that they obtain better results by a mulch of straw or coarse manure than by even the most careful stirring of the ground by plow or hoe.

It is important that the ground upon which the strawberry bed is to be planted should be rich, but don't set strawberry plants on land which has been freshly manured. If the manure is well rotted the effect will not be so bad, but, if possible, land should be selected for the purpose which has had no manure of any kind on it for at least a year before. As good a preparation, perhaps, as can be had for a strawberry bed is potato ground of the previous year which had been well manured before being planted to that crop. It is

generally understood that the ground for the strawberry bed must be rich, but it is not so well known that the fertilizing material must be well rotted and thoroughly incorporated with the soil. This too often leads to covering the ground with a heavy coating of raw manure shortly in advance of the planting, which leaves it in a far worse state for this purpose than if nothing were applied to it at all.

The nurseryman who makes war upon the peddling fruit tree vendor is too often thought to be inspired with no better motive than the desire to do away with a rival. Conscientious nurserymen find it hard to fill their places to the satisfaction of everybody. They are expected to furnish truthful information to the public regarding the kinds of fruits to be planted, and the manner of caring for the stock before and after planting. It is not possible for them to do this without coming in conflict with some of the traveling frauds which infest every part of the country. And when the nurserymen denounce these frauds, as it is their duty to do, they are charged with doing so for no better reason than to rid themselves of their competition.

No fruit that I know of is so easily affected by the stock on which it is budded or grafted, as the plum. Messrs. Welling and Philpott, about twenty years ago, began to propagate a choice native plum found on Cedar River. Pits of the small late inferior frost plums were secured in the woods near by, and when two years old were top-grafted with the choice variety. Three years afterward they came into bearing, but all were as small and as inferior as the frost plums used for stocks. We must be careful in the selection of proper stocks for the plum, owing to this remarkable influence of stock on graft.—R. P. Speer.

The following means may be adopted in a small garden patch for trapping cut worms with tolerably good effect: Take a sharp pointed stick like a large walking cane and thrust it into the ground to the depth of three or four inches at several points about the plant you wish to protect from the worms. Withdraw the stick carefully so that the dirt will not fall back into the hole. Many of the cut worms will fall into these holes, and when once in the trap they are not able to get out of it.

To make sure that they do not get away a person can go around once a day and press the same stick into the holes. This will settle the fate of any worms which may have taken up a temporary abode in those places.

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